

UC RIVERSIDE · BIOPHYSICS PROGRAM

From Neurons to Networks

Learn how to design machine-learning algorithms for problems in academic research

Dr. Amun Patel



DATES

July 27 – 29, 2026
Mon · Tue · Wed



TIME

11:00 AM – 3:00 PM
every day



LOCATION

WCH 205 / 206
UC Riverside

★ Awards & closing remarks: 3:30 – 5:00 PM on the final day

DAY 1

Fundamentals

- Build a neural network from scratch: the math behind backpropagation, how a network learns, and importance of a loss function.
- Neural networks in the modern age: hands-on implementation with TensorFlow & PyTorch.

DAY 2

Machine Learning in Research

- Deep dives into standard models used in both computational & experimental research.

VAEs

Variational Autoencoders

GNNs

Graph Neural Networks

DDPMs/DDIMs

Diffusion Models

DAY 3

Team Challenge ★

- Teams participate in a challenge designed to test their knowledge and skill in developing a Machine Learning algorithm for a STEM problem.
- AlphaFold case study on hybrid architectures beyond the standard models, tips on troubleshooting, and closing remarks & well-wishes.

REGISTER NOW FOR FREE

Reserve your spot

Prerequisite: comfort with Python fundamentals
A short crash-course included at [kaggle.com/learn/python](https://www.kaggle.com/learn/python)

For computational and experimental backgrounds

Open to all UC Riverside Biophysics graduate students.

SCAN TO REGISTER



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